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Organography

THE LARGE English edition of the second part of GOEBEL'S *Organography of plants* has now appeared.³ The first part has become so indispensable to students of experimental morphology that the translation of the second has been awaited with much interest, and with some impatience as time wore on. As the German edition was reviewed in this journal shortly after its appearance in 1900,⁴ little need now be said about the subject matter. The work, as a whole, is an attempt to present the configuration of plants from the point of view of function and environment. While the first part is primarily a discussion of principles, the second is devoted to a more detailed presentation of the structures and variations of the Bryophyta, Pteridophyta, and Spermatophyta. The wide experience of the author in experimental work, and more especially his great wealth of first-hand observation of plants under most diverse conditions, has enabled him to present a mass of detailed information that is of very great value and suggestiveness.

The translation has been accurately done by Professor BALFOUR. "Spermatophyta" will strike everyone as a novel form, but it has classical usage as justification and its brevity will probably cause it to displace the more familiar Spermatophyta. The translator has taken wise liberties with the typographical form, by making headings and subheadings that present the matter more clearly to the eye. When he alters the order of figures, however, we think he goes a bit too far. Other points of make-up are open to objection. If the translation had been made into two volumes of nearly equal size, by dividing at the section on Pteridophyta and Spermatophyta the work would have been more convenient to handle than in one thin (270 pages) and one thick (708 pages) part. The separate pagination, and calling the volumes "parts," together with the separate numbering of figures seem to us distinct bibliographical mistakes.

The index is very complete and adds greatly to the value of this translation. The index to illustrations should have been made a part of it. Two indexes are never as good as one.—W. B. MCCALLUM.

Mosses and ferns

THE EXHAUSTION of the edition of CAMPBELL'S *Mosses and ferns* and the continuing demand for it have given opportunity for a thorough revision,⁵ made necessary by the researches of the last decade. With the experience gained from a first edition, the author who undertakes a second, unhampered by "plates,"

³ GOEBEL, K., *Organography of plants*, especially of the Archegoniatae and Spermatophyta. Authorized English edition by ISAAC BAYLEY BALFOUR. Part II. Special Organography. Imp. 8vo. pp. xxiv + 708. *figs.* 417. Oxford: Clarendon Press. 1905. \$7.00.

⁴ BOTANICAL GAZETTE 31:204. 1901.

⁵ CAMPBELL, D. H., *The structure and development of mosses and ferns* (Archegoniatae). 8vo. pp. vii + 657. *figs.* 322. New York: The Macmillan Co. 1905. \$4.50.

may reasonably be expected to perfect his book to the limit of his powers, embracing the opportunity not only to bring the work up to date, but also to eliminate crudities of design and execution, well-nigh inseparable from a first edition.

These expectations, unhappily, are not fully met in the revision of *Mosses and ferns*. This is the more disappointing in that the volume is indispensable, both because it is unique in its field, and because of certain undeniably excellent features. These have become well known, and we do not recount them because they are so. They are transmitted, undiminished, to the present edition.

That the book is fairly brought up to date goes without saying, though one may differ from the author as to relative values among some of the newer researches, and may wish that some of the old figures had been replaced by new and better ones. In the bryophyte portion there is less change than among the chapters on pteridophytes, because among the mosses the researches have been fewer and less important. This is shown by space comparisons:

	PAGES		Approximate percentage increase	FIGURES		Approximate percentage increase
	1st Ed.	2nd Ed.		1st Ed.	2nd Ed.	
Bryophyta.....	217	228	5	107	123	7
Pteridophyta.....	290	333	15	155	199	25
Totals.....	519	606	16 $\frac{3}{4}$	266	322	21

In the bryophytes there are no notable changes of view; in the pteridophytes there are some; but on the whole the author believes that later investigations have confirmed his earlier views. The Isoetaceae have been removed from their association with the Marattiaceae and placed after the Lycopodiaceae, but other large groups hold the same position as in the first edition. The most extensive revision appears in the section on the eusporangiate ferns, where particular attention is paid to the work of BOWER.

Some new material is here published for the first time, but it is mostly taken (with due acknowledgment to others) from papers previously published. A new chapter on the nature of alternation of generations discusses the probable origin of the liverwort thallus, the origin and evolution of the sporophyte, and presents the arguments for homologous and for antithetic alternation, the author giving his adherence to the latter theory. He reiterates the opinion also, that the weight of evidence is in favor of a genetic connection of Pteridophyta with Bryophyta, through Anthocerotae. There is also a new chapter on fossil archegoniates, in which SCOTT's results figure largely.

Some inaccuracies of the first edition are corrected and some persist. Thus, in an attempt to correct the curious error as to the annulus of the moss capsule, the author doubles it on p. 210, but leaves it in the adjacent figure and on p. 213 in its Simon-pure form. The obviously misleading account of the megaspo-

⁶ Greater than either part on account of added chapters.

rangium of Azolla is also retained (p. 414). "Recent" still appears in referring to papers, recent when the first edition was issued in 1895 (*e. g.*, Waldner 1887, Guignard 1889, Buchtien 1887), but now rather ancient.

In style and method of presentation the second edition has no advantage over the first. So far as typography affects it, there seems to be almost ingenuity in selecting for chapter headings and especially for subheads, the most confused and, to a novice, confusing forms. Thus, interpreted by accepted typographical canons, *The biology of the Marchantiales* is a subhead under MONOCLEA; and THE ACROGYNAE is a subhead under ANACROGYNAE, and coordinate with ANELATEREAE and ELATEREAE. Citation of bibliographical references in subheads is awkward and is a new blemish, *e. g.*,

LYCOPODINEAE (*Potonia* (3); *Scott* (1); *Solms Laubach* (2)).

The bibliography, to whose enlargement and completeness the author refers in the preface, would have profited by greater care. Not only are there numerous mistakes in the text-references, one paper being cited when another is meant, but there are papers cited in the text which do not appear in the bibliography at all. Five such cases came to light by pure chance—GARBER, PORSILD, ASHWORTH, BAUKE, and GRAND'EURY; how many could be found by searching we know not. As a minor, but not trifling, matter may be mentioned the unsystematic mode of writing citations; *e. g.*, in the same page four of BOWER's *Studies in the morphology of spore-producing members* are cited thus:

Roy. Soc. Phil. Trans., vol. clxxxv: 1894, p. 473.

London, 1896. [Nothing more.]

Phil. Trans. Roy. Soc., series B, vol. 189: 35-81, 1897.

Phil. Trans., ser. B., vol. 192: 29 138, 1899.

A like variety can be found in the citation of journals. There are traces of a self-consistent system, however, which hardly goes beyond the adoption, from the one most widely used in America, of its most unimportant feature—the colon following the volume number!

Proof-reading throughout the volume has been very bad, for much of which the printing office and the publishers are blameworthy, but not for all.

The index is really absurd. It is charitable to believe that the author farmed this out to an inexperienced hand, and what he did not do to spoil it by sins of omission and commission, the compositor did by ingenious disarrangement of a too complex system of indentation. *E. g.*, "Hepaticae" (a curious entry when there are 150 pages about them) has thirty-nine bare entries; its subordinate phrase "germination of spores" has one, and "spores" one (the same), while the spores and their germination are referred to dozens of times in the text. "Acrogynae" has five entries, but "Acrogenous liverworts" in the next line has one, and that is not among the five! "Affinities" has only two sub-references, *Matonia* and *Monoclea*, whereas almost every large group has under it in the text a conspicuous subhead, like *Affinities of the Musci*, and so on.

In fact, the revision everywhere shows evidences of haste, and as the author signs his preface April 1905, just before he sailed for Europe on his way to South Africa, it seems likely that he was working under pressure that prevented—most unfortunately, indeed—that “careful revision” of which he speaks.

Spite of defects that, by a little more care, the author could easily have avoided, we welcome the new edition and commend it to every botanist as a necessary reference work, even though he have the first.—C. R. B. and C. J. C.

MINOR NOTICES.

IN AN ELEGANT work on the Bahama Islands,⁷ published by the Geographical Society of Baltimore, there is an interesting ecological presentation of the vegetation by W. C. COKER, the result of an expedition undertaken in the summer of 1903. The discussion of the plant formations follows accounts of previous botanical work in the Bahamas, the composition and relationships of the flora, and the economic plants. On New Providence Island the author found a sand strand formation made up of the following associations successively inward: *Ipomoea pescaprae* with *Paspalum* and *Sporobolus*, *Uniola* and *Tournefortia*, *Pithecolobium* and *Salmea*, *Erithalia* and *Reynosa*, and the silver palm. There are wet and dry pine barrens, the former with an undergrowth of *Inodes palmetto*, the latter with a *Coccothrinax*. Other formations are those of the salt marsh, the fresh marsh, the coppice, and the rocky shore. On Watlings Island *Suriana*, *Chrysobalanus*, and *Lantana* are prominent on the sand strand, and there are mangrove formations with *Conocarpus*. The paper closes with a list of the plants collected. There are plates of typical formations, and of some economic plants, and there is a colored plate of *Bougainvillea*.—H. C. COWLES.

A POPULAR account of all the pteridophytes except the homosporous Filicales, with special attention to ranges, habitat, time of fruiting, manner of growth, folk lore, etc., is given by CLUTE in a new book entitled *The fern allies of North America*.⁸ The field notes, which show an intimate acquaintance with the life histories of the various forms, will interest the botanist as well as the layman. The seven keys, by which the genera and species may be identified are as untechnical as an efficient key can be made. Necessary technical terms are defined in a glossary. Both common names and scientific names are given. No attempt is made to treat internal anatomy or morphology.

The illustrations, more than 150 in number, are by IDA MARTIN CLUTE. Details which are of taxonomic importance have been drawn with particular accuracy, so that many of the species might be identified by the illustrations alone.—CHARLES J. CHAMBERLAIN.

⁷ COKER, W. C., Vegetation of the Bahama Islands. The Bahama Islands. pp. 185–270. New York. 1905.

⁸ CLUTE, W. N., The fern allies of North America north of Mexico. 8vo. pp. xiv + 278. New York: Frederick A. Stokes. 1905. \$2.00 net.